Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An ~~MEMS~~ ink jet printhead comprising a multi-layer ~~silicon~~ substrate, said multi-layer substrate comprising:

a silicon substrate;

drive transistors and CMOS interconnect layers formed on said silicon substrate;

a passivation layer covering said drive circuitry and CMOS interconnect layers; and

a plurality of nozzles mounted on said passivation layer~~having a plurality of nozzles~~, each nozzle comprising:

a chamber adapted to contain an ejectable liquid; and,

at least one droplet ejection actuator associated with each of the chambers respectively, the droplet ejection actuator being electrically connected to a respective drive transistor and adapted to eject a droplet of the ejectable liquid from the nozzle,

wherein the chambers are ~~mounted on a passivation layer of the silicon substrate and are~~ at least partially formed by an amorphous ceramic material.

2. (Previously Presented) An ink jet printhead according to claim 1 wherein the drop ejection actuator is a heater element configured for thermal contact with a bubble forming liquid within the chamber; such that,

heating the heater element to a temperature above the boiling point of the bubble forming liquid forms a gas bubble that causes the ejection of a droplet of the ejectable liquid from the nozzle corresponding to that heater element.

3. (Original) An ink jet printhead according to claim 1 wherein the amorphous ceramic material is silicon nitride.

4. (Original) An ink jet printhead according to claim 1 wherein the amorphous ceramic material is silicon dioxide.

5. (Original) An ink jet printhead according to claim 1 wherein the amorphous ceramic material is silicon oxynitride.

6. (Original) An ink jet printhead according to claim 2 wherein the ejectable liquid is the same as the bubble forming liquid.

7. (Original) An ink jet printhead according to claim 1 wherein the printhead is a pagewidth printhead.

8. (Withdrawn) An ink jet printhead according to claim 1 wherein the droplet ejection actuator is a paddle vane located within the chamber, the paddle vane being adapted to be actuated by a thermal actuator for ejecting a droplet of the ejectable liquid;

a thermal actuator located externally of the chamber and attached to the paddle vane, wherein the thermal actuator includes a plurality of separate spaced apart elongate thermal actuator units, which are interconnected at a first end to a substrate and at a second end to a rigid strut member.

9. (Withdrawn) An ink jet printhead as claimed in claim 8 wherein the rigid strut member is connected to a lever arm having one end attached to the paddle vane.

10. (Withdrawn) An ink jet printhead as claimed in claim 1 wherein the thermal actuator units operate upon conductive heating along a conductive trace, the conductive heating including generation of a substantial portion of the heat in an area adjacent the first end of each thermal actuator unit.

11. (Withdrawn) An ink jet printhead as claimed in claim 4 wherein said conductive heating includes a thinned cross-section adjacent said first end.

12. (Withdrawn) An ink jet printhead as claimed in claim 1 wherein the thermal actuator units comprise conductive heating layers which, in turn, comprise substantially either a copper nickel alloy or titanium nitride.

13. (Currently amended) A printer system which incorporates ~~a MEMS~~an inkjet printhead, the printhead comprising a ~~silicon~~ multi-layer substrate ~~having a plurality of nozzles, each nozzle~~ comprised of~~sing~~:

a silicon substrate;

drive transistors and CMOS interconnect layers formed on said silicon substrate;

a passivation layer covering said drive circuitry and CMOS interconnect layers; and

a plurality of nozzles mounted on said passivation layer, each nozzle comprising:

a bubble forming chamber adapted to contain a bubble forming liquid; and,

at least one heater element disposed in each of the bubble forming chambers respectively, the heater elements being electrically connected to a respective drive transistor and configured for thermal contact with the bubble forming liquid; such that,

heating the heater element to a temperature above the boiling point of the bubble forming liquid forms a gas bubble that causes the ejection of a drop of an ejectable liquid from the nozzle corresponding to that heater element,

wherein the bubble forming chambers are ~~mounted on a passivation layer of the silicon substrate and are at least partially~~ formed ~~by~~ of an amorphous ceramic material.

14. (Cancelled)

15. (Original) A printer system according to claim 13 wherein the amorphous ceramic material is silicon nitride.

16. (Original) A printer system according to claim 13 wherein the amorphous ceramic material is silicon dioxide.

17. (Original) A printer system according to claim 13 wherein the amorphous ceramic material is silicon oxynitride.

18. (Original) A printer system according to claim 14 wherein the ejectable liquid is the same as the bubble forming liquid.

19 (Original) A printer system according to claim 13 wherein the printhead is a pagewidth printhead.

20. (Withdrawn) A printer system according to claim 13 wherein the droplet ejection actuator is a paddle vane located within the chamber, the paddle vane being adapted to be actuated by a thermal actuator for ejecting a droplet of the ejectable liquid;

a thermal actuator located externally of the chamber and attached to the paddle vane, wherein the thermal actuator includes a plurality of separate spaced apart elongate thermal actuator units, which are interconnected at a first end to a substrate and at a second end to a rigid strut member.

21. (Withdrawn) A printer system as claimed in claim 20 wherein the rigid strut member is connected to a lever arm having one end attached to the paddle vane.

22. (Withdrawn) A printer system as claimed in claim 13 wherein the thermal actuator units operate upon conductive heating along a conductive trace, the conductive heating including generation of a substantial portion of the heat in an area adjacent the first end of each thermal actuator unit.

23. (Withdrawn) A printer system as claimed in claim 16 wherein said conductive heating includes a thinned cross-section adjacent said first end.

24. (Withdrawn) A printer system as claimed in claim 13 wherein the thermal actuator units comprise conductive heating layers which, in turn, comprise substantially either a copper nickel alloy or titanium nitride.

25. A method of ejecting drops of an ejectable liquid from ~~a MEMS~~an inkjet printhead, the printhead comprising a ~~silicon~~ multi-layer substrate ~~having a plurality of nozzles, each nozzle~~ comprisinged of:

a silicon substrate;

drive transistors and CMOS interconnect layers formed on said silicon substrate;

a passivation layer covering said drive circuitry and CMOS interconnect layers; and

a plurality of nozzles mounted on said passivation layer, each nozzle comprising:

a chamber adapted to contain an ejectable liquid; and,

at least one droplet ejection actuator associated with each of the chambers respectively, the droplet ejection actuator being electrically connected to a respective drive transistor,

wherein the chambers ~~are mounted on a passivation layer of a silicon substrate and~~ are at least partially formed ~~by~~ of an amorphous ceramic material;

the method comprising the steps of:

placing the ejectable liquid into contact with the drop ejection actuator; and

actuating the droplet ejection actuator using said drive circuitry such that a droplet of an ejectable liquid is ejected from the corresponding nozzle.

26. (Previously presented) A method according to claim 25 wherein the drop ejection actuator is a heater element configured for thermal contact with a bubble forming liquid within the chamber; such that,
heating the heater element to a temperature above the boiling point of the bubble forming liquid forms a gas bubble that causes the ejection of a droplet of the ejectable liquid from the nozzle corresponding to that heater element.

27. (Previously presented) A method according to claim 25 wherein the amorphous ceramic material is silicon nitride.

28. (Previously Presented) A method according to claim 25 wherein the amorphous ceramic material is silicon dioxide.

29. (Previously Presented) A method according to claim 25 wherein the amorphous ceramic material is silicon oxynitride.

30. (Previously Presented) A method according to claim 26 wherein the ejectable liquid is the same as the bubble forming liquid.

31. (Previously Presented) A method according to claim 25 wherein the printhead is a pagewidth printhead.

32. (Withdrawn) A method according to claim 25 wherein the droplet ejection actuator is a paddle vane located within the chamber, the paddle vane being adapted to be actuated by a thermal actuator for ejecting a droplet of the ejectable liquid;

a thermal actuator located externally of the chamber and attached to the paddle vane, wherein the thermal actuator includes a plurality of separate spaced apart elongate thermal actuator units, which are interconnected at a first end to a substrate and at a second end to a rigid strut member.

33. (Withdrawn) A method as claimed in claim 32 wherein the rigid strut member is connected to a lever arm having one end attached to the paddle vane.

34. (Withdrawn) A method as claimed in claim 25 wherein the thermal actuator units operate upon conductive heating along a conductive trace, the conductive heating including generation of a substantial portion of the heat in an area adjacent the first end of each thermal actuator unit.

35. (Withdrawn) A method as claimed in claim 29 wherein said conductive heating includes a thinned cross-section adjacent said first end.

36. (Withdrawn) A method as claimed in claim 25 wherein the thermal actuator units comprise conductive heating layers which, in turn, comprise substantially either a copper nickel alloy or titanium nitride.